SPECIAL DESIGNATION AREAS APPENDIX

INTRODUCTION

This appendix contains in-depth information for special designation areas and designation processes in the planning area. Information includes detailed information about existing and nominated areas of critical environmental concern (ACECs) and the process used when considering rivers for designation as wild and scenic rivers.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

INTRODUCTION

The ACEC designation is an administrative designation used by the Bureau of Land Management (BLM) through the land use planning process. ACEC designation is authorized under Sec. 102(a)(11) of the Federal Land Policy and Management Act (FLPMA).

BLM regulations (43 Code of Federal Regulations [CFR] part 1610.0-5(a)) define an ACEC as:

> "within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards."

Because ACEC designations can only be made on BLM-administered surface estate, private lands and lands administered by other agencies cannot be designated ACECs. In order to be designated, special management beyond standard provisions established by the plan must be required to protect the relevant and important values.

EVALUATION PROCESS

In order to be designated an ACEC, the nominated area must meet both the relevance and importance criteria as defined in 43 CFR 1610.7-2 and BLM Manual 1613. If the relevance and importance criteria are met, an area must be identified as a potential ACEC and considered for designation and management in the resource planning process.

To contain "relevance" an area must meet one or more of the following criteria by containing:

1. significant historic, cultural, or scenic values, including rare or sensitive archeological resources and religious or cultural resources important to American Indians;
2. fish and wildlife resources, including habitat for endangered, sensitive, or threatened species or habitat essential for maintaining diversity of species;
3. natural process or systems including endangered, sensitive, or threatened, plant species; rare geologic features; or rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or
4. natural hazards including avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs.

To contain "importance" the value, resource, system, process, or hazard described above must have substantial significance and values characterized by one or more of the following:

1. more than locally significant qualities;

2. qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, unique, endangered, threatened, or vulnerable to adverse change;
3. recognition as warranting protection to satisfy national priority concerns or carry out the mandates of FLPMA;
4. qualities that warrant recognition to satisfy public or management concerns about safety and public welfare; or
5. posing a significant threat to human life or safety or property.

An interdisciplinary team evaluates each area to determine if it meets both the relevance and importance criteria. Evidence of relevance and importance may be gathered from BLM or other sources. If an area does not meet the criteria for ACEC designation, or special management attention is not prescribed, analysis supporting the conclusion is incorporated into this resource management plan (RMP).

The relevance and importance evaluations for each nominated and existing ACEC are described below.

NOMINATED ACECS

The areas described below have been nominated for consideration for ACEC designation.

CUSTER CREEK AND BIG DRY ARM

Nominated for black-tailed prairie dog habitat for reintroduction of the black-footed ferret. This nomination contains lands within the Black-Footed Ferret Reintroduction ACEC (see *Existing ACECs* below). Therefore, the evaluation below is for lands lying outside the existing ACEC (Custer Creek) and a new proposal for lands along the Missouri River Breaks (Big Dry Arm).

Relevance Criteria: The nominated areas do not meet the relevance criteria because the areas are not suitable habitat for black-tailed prairie dogs. Furthermore, the subject lands nominated for ACEC designation are within a checkerboard-land ownership pattern, which would complicate a potential reintroduction of black-footed ferrets on private lands (where poisoning of prairie dogs or other habitat manipulation projects could occur on these lands).

Importance Criteria: The nominated areas do not meet the importance criteria because the lands do not have more than a local significance; are not fragile or irreplaceable, endangered or threatened; and have not been recognized as warranted to receive protection to satisfy national priorities.

Summary: The lands evaluated do not meet the relevance or importance criteria. These lands are not recommended for ACEC designation. The BLM continues to work with the Montana Black-footed Ferret Working Group on developing black-footed ferret reintroduction sites where potential habitat exists within the planning area, with the goal of creating at least one viable reintroduction site within the planning area that meets the minimum criteria for successful reestablishment of black-footed ferrets.

IMPORTANT BIRD AREAS

Nominated as the Tongue River, Musselshell, and Powder/Carter County (sage-grouse) important bird areas. See the end of this section for evaluation of sage-grouse habitat.

CEDAR CREEK BATTLEFIELD

Nominated for important cultural values (1,022 BLM-administered acres; Map 39).

Relevance: The Cedar Creek Battlefield meets relevance criterion 1 for containing significant historic and cultural values. The battlefield is one of the major battlefields of the great Sioux War. This war and associated sites are of major interest to both national historians and history enthusiasts, as well as the American Indian cultures of the Sioux, Crow, and Cheyenne Tribes.

Importance: The Cedar Creek Battlefield site meets the importance criteria 1, 2, and 3. The site possesses more than locally significant qualities; values that are fragile, sensitive, rare, irreplaceable, exemplary, unique, or threatened; the site is vulnerable to adverse change; and the site possesses values that warrant protection as mandated by FLPMA. The site is part of a nationally significant cultural war and represents one of the significant battles of the Sioux War.

Summary: The Cedar Creek Battlefield is approximately 1,021 public surface and mineral acres in size and located about 20 miles northwest of Terry, Montana, in Prairie County.

This area is a good example of a battlefield from the great Sioux War of 1876 to 1877, which was America's most prolonged and costly Indian war. The eighth of only twelve Sioux War battlefields, it remains interesting and one of the most enigmatic battlefields in American history more than 100 years later. The war was initially waged over the rights to gold in the Black Hills of South Dakota although the rights and privileges granted to the Sioux in the Fort Laramie Treaty of 1868 were also in dispute. The result transformed the entire northern plains from Indian and buffalo country into an open area for western settlement, which was dominated by miners, cattlemen, and homesteaders. This conflict produced a military-cultural epic with few comparisons in United States history.

While the eastern United States contains many numerous Revolutionary and Civil War battlefields, the great Sioux War of 1876 was probably the next largest war (based on geographic area) fought on American soil, spanning five states. This was the only war fought in the west. Public interest in this war is increasing, as evidenced by the numbers of visitors to the Little Bighorn Battlefield each year (and other developed sites). However, other major sites from the war lack the focused attention given to the Battle of the Little Bighorn.

The BLM is fortunate to have the unique opportunity to administer public lands containing six of the twelve major battle sites, five of which are within the Miles City Field Office (MCFO) planning area. The actual battlefield site area encompasses about 3,780 acres (all ownerships), with approximately 940 BLM-administered acres constituting the heart of the battlefield.

The Cedar Creek Battle was fought on October 21, 1876, the eighth of twelve major engagements of the Sioux War fought in a little over a year's time. When a supply train did not arrive as scheduled at the Tongue River Cantonment, General Nelson A. Miles led the entire 5th Infantry out in relief. Miles met the wagon train on October 18, and the wagons were able to reach the cantonment on October 20. Miles did not return to his Tongue River post but pursued the wagon train attackers into the highlands north of the Yellowstone River between what is now Miles City and Glendive, Montana. On October 20, Miles spotted a large group of Sioux. Two Indians came forward under a white flag of truce announcing that Sitting Bull wished to confer with Miles about surrendering his people. The meeting, the first between a government agent and a leader of the non-agency Sioux, was ultimately fruitless. Sitting Bull declared his desire to remain in buffalo country and his insistence that the troops must leave. Miles broke off the meeting, and Sitting Bull and his followers returned to their camp some 5 miles away.

On the morning of October 21, Miles advanced against Sitting Bull's village in the bottom of Cedar Creek. At mid-morning, the two agreed to talk again, but they could not reach mutually agreeable terms. The meeting broke up at noon, and Miles deployed for an attack. At first, the confrontation resembled a giant chess game, with each side trying to seize minor tactical advantages but neither side wishing to fire the first shot. However, when the Sioux were seen igniting the grass, Miles' scouts fired, and an afternoon-long battle ensued. The Sioux were quickly outmaneuvered and overwhelmed, and they abandoned their village, fleeing northeast. Casualties from the Cedar Creek engagement included two soldiers wounded and five American Indians killed.

The Cedar Creek Battlefield meets both relevance and importance criteria and is recommended for ACEC designation.

FLAT CREEK

Nominated for important paleontological values (547 BLM-administered acres; Map 39).

Relevance: This microfossil site meets relevance criterion 3 for a "natural process or system." The Hell Creek geologic formation and the associated fossils preserve a high-quality record of the end of the dinosaur age at the close of the Cretaceous Period., which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have taken place within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities that are rare for this geologic period.

Importance: The Flat Creek area meets importance criteria 1 and 2. The area has produced fossils and provided research data that has proven to be significant to the national and global scientific communities. Comparison of fossils and other data collected in this area has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, which ensures access by the scientific community.

Summary: The Flat Creek paleontological area is approximately 547 public surface and mineral acres located in Garfield County. The area meets both relevance and importance criteria and is recommended for ACEC designation.

LONG MEDICINE WHEEL

Nominated for important cultural resource values (179 BLM-administered acres; Map 39).

Relevance: The Long Medicine Wheel area meets relevance criterion 1 for containing significant historic and cultural values. The cultural manifestations displayed at the Long Medicine Wheel site are rare.

Importance: The Long Medicine Wheel archeological site meets importance criterion 1 for possessing more than locally significant qualities. This site is regionally renowned, rare, and a sensitive site type of interest and concern to American Indians. The site possesses significant qualities that make it important and of interest to the region's archeological community. The site is considered eligible for nomination to the National Register of Historic Places (NRHP) and eligible for consideration as a traditional cultural property (TCP).

The Long Medicine Wheel site also meets importance criterion 2 for possessing values that are fragile, sensitive, fairly rare, irreplaceable, exemplary, unique, endangered, threatened, and vulnerable to adverse change. Although the site is not "one of a kind," all medicine wheel type sites are considered rare and each has its own unique properties. The site and the information it contains are unique and irreplaceable. The fact that this site is a ceremonial site type makes it of particular interest to American Indians and eligible for designation as a traditional cultural property. The site is also threatened, endangered, and vulnerable to both erosion and the loss of the site's valuable information to artifact collectors.

Summary: The Long Medicine Wheel area is approximately 179 acres of BLM-administered surface located in northeastern Montana in north-central McCone County, about 6 miles south of the Missouri River and 12 miles southwest of Wolf Point, Montana.

The Long Medicine Wheel (Site 24MC148) is a large stone circle of over 25 meters in diameter with a central small stone cairn or rock pile. This site functioned as a prehistoric American Indian ceremonial circle and is located on top of a high prominent butte in northern McCone County. This site is significant because it is one of only five medicine wheels recorded in the Northern Plains, and it is the only one known sit to be recorded on BLM-administered lands within the MCFO planning area.

Ethnographic overview studies completed for the MCFO have identified this site type to be of interest and concern to American Indians. This historic property is also protected under the National Historic Preservation Act of 1966, American Indian Religious Freedom Act (42 U.S.C. 1996), Native American Graves Protection and Repatriation Act, Executive Order 13007 (May 24, 1996), and other statutes and executive orders. The Long Medicine Wheel site meets the relevance and importance criteria and is recommended for ACEC designation.

WALSTEIN

Nominated for important cultural and paleontological values (2,054 BLM-administered acres; Map 39).

Relevance: This area meets relevance criterion 1 as part of "a natural process or system," having produced a number of significant paleontological and cultural properties, including the Mill Iron Site. Fossils in this area preserve a high-quality record of the end of the dinosaur age at the close of the Cretaceous Period, which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have taken place within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities that are rare for this geologic time period.

The area has a number of cultural sites that are considered significant and eligible for nomination to the NRHP. In addition, the area is eligible for allocation to conservation use through the development of a cultural resource management plan (CRMP). This significance is derived from the number of Paleo-Indian age sites and these site's unique properties and potential to contribute to important scientific information regarding cultural traditions from the Paleo-Indian period.

*Importance***:** The area meets importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the area warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. It is important that buried deposits be preserved to be of maximum value to the scientific community.

The Walstein area has produced fossils and provided research data that has proven to be significant to the national and global scientific communities. Comparison of fossils and other data collected in this area has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, which ensures access by the scientific community.

Summary: The Walstein area is 2,053 BLM-administered acres located in Carter County. The Hell Creek formation is significant for paleontological resources spanning the end of the Cretaceous Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record just before the mass extinction of dinosaurs and other life forms). As a result of the quality bedrock exposure and the preservation of the fossils in this area, the Walstein area provides an example of this fossil record. A number of scientific papers have been written based on research done in this area, and several major finds have also been recovered from the area. Most notably, this area has produced new dinosaur fossil localities, such as a new Tyrannosaurus Rex for the Los Angeles County Museum. This area containing exposures of the Hell Creek and Fort Union formations have also produced other dinosaur vertebrate fossils as well as other vertebrate fossils, including turtle and crocodile remains. The area continues to provide information as new material weathers out of the rock.

The Walstein area also qualifies as an ACEC under both the relevance and importance criteria for the cultural values the area contains. The area contains the Mill Iron site (24CT30-Mill Iron site), which is a Goshen period Paleo-Indian site dating between the Folsom and Clovis periods, the oldest known, well-documented aged human occupations in the Americas. The Mill Iron site and others are determined eligible or are considered eligible for nomination to the NRHP. The area is significant for its prehistoric Paleo-Indian period sites. These sites represent the oldest known occupations in the western hemisphere and contain important information on early prehistory of American Indians in the plains environment. The Walstein area meets both relevance and importance criteria. It is recommended for ACEC designation.

POWDERVILLE

Nominated for unique paleontological values (Alternative A: 29,571 acres; Alternatives B, C, and D: 27,151 acres; and Alternative E: 9,518 acres).

Relevance: This area meets relevance criteria 1, for "a natural process or system." The Hell Creek Geologic formation and the associated fossils preserve a unique record of the end of the dinosaur age at the close of the Cretaceous Period, which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Powderville area has produced fossils and provided research data that has proven to be significant to the national and global scientific communities. Comparison of fossils and other data collected here has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous Period. This fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, thereby assuring access by the scientific community.

Summary: The Powderville area is located in Powder River and Carter counties. The Hell Creek formation is significant for paleontological resources spanning the end of the Cretaceous Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record just before the mass extinction of dinosaurs and other life forms. As a result of the quality bedrock exposure and the preservation of the fossils in this area, the Powderville area provides an example of this fossil record. A number of scientific papers have been written based on research done in this area and several major finds have been recovered from this area. Most notably, this area has recently produced new dinosaur fossil localities, including the Jane site, a rare juvenile *Tyrannosaurus Rex*, also known as *Nanotyranus*, which was excavated by the Burpee Museum of Rockford, Illinois. The area has also produced many other numerous dinosaur vertebrate fossils, including *Tyrannosaurus rex*, hadrosaur, *Triceratops*, and other vertebrate fossils that include fish, turtle, crocodile, champsosaur and mammal remains. The area continues to provide new and exciting information as new material weathers out of the exposed rock formations.

YONKEE

Nominated for unique cultural resource values (40 BLM-administered acres; Map 39).

Relevance: The Yonkee area meets the relevance criterion for having significant historic and cultural values. The cultural phase displayed at the Powers-Yonkee site is rare and is the "type" site for the Yonkee cultural phase, making it of interest to the region's archeological community.

Importance: The Powers-Yonkee Site, a bison kill site, is significant because it is among one of the first reported bison kill sites in the Northwestern Plains. It is also the "type" site for the Yonkee projectile point style and cultural phase, making it an excellent example of Late Plains Archaic sites. The Powers-Yonkee site, also known by its Smithsonian trinomial number 24PR5, was originally believed to be a Late Middle Prehistoric period site dating to about 2,500 years before the Common Era. As this site was the first of its cultural phase to be described, it became the "type" site for this phase. This arroyo trap bison kill contained skeletal remains of bison intermediate between *Bison bison* and *Bison antiquus*.

Archeological excavations were originally conducted in 1961, defining the Yonkee cultural phase. During the past decade, archeologists began to question seriously certain interpretations initiated in the original Powers-Yonkee report. In 1986, at the instigation of Jerry Clark, then BLM's Miles City District archeologist, the BLM entered into a cooperative agreement with Montana State University to perform additional assessments of the Powers-Yonkee site, which was conducted by Dr. Tom Roll of Montana State University. The assessment determined that most of the remaining deposits are located on BLM-administered lands and substantial portions of the site remain. Subsequent radiocarbon dates now suggest the site dates to about 1,000 years before the Common Era.

The site has contributed valuable information to the scientific community and has added significantly to the further understanding of the prehistory of the Northwestern Plains. The site also qualifies for inclusion on the NRHP. To date, only a portion of the site has been excavated, and substantial deposits remain available for future study. These studies may help resolve the many unanswered questions concerning the prehistory of the Northwestern Plains.

Summary: Although the Yonkee area meets the relevance and importance criteria, it does not require special management attention to protect and prevent irreparable damage to important cultural resources. The Cultural Resources management actions within this RMP require all significant cultural resources be protected with an oil and gas leasing No Surface Occupancy stipulation and all surface-disturbing activities allowed only as long as the activities would not have an adverse effect to the resource.

EVALUATION OF RELEVANCE AND IMPORTANCE CRITERIA FOR PROPOSED GREATER SAGE-GROUSE AREA OF CRITICAL ENVIRONMENTAL CONCERN

In response to the *Notice of Intent to Prepare Environmental Impact Statements To Incorporate Greater Sage-grouse Conservation Measures Into Land Use Plans and Land Management Plans* (BLM 2011e), the BLM received an ACEC nomination for greater sage-grouse from WildEarth Guardians that will be considered in this planning process.

This report presents the completed evaluation form for the nominated ACEC in the planning area (Table 1). An ACEC that meets both relevance and importance criteria is included in Alternative B and analyzed in this RMP. Map 4 identifies the location of the nominated ACEC.

Area Considered and General Location: Portions of Garfield, McCone, Custer, Carter, Powder River, Big Horn, Rosebud, and Treasure counties (Map 4).

General Description: Priority habitat areas for greater sage-grouse.

Acreage: 1,067,000 BLM-administered surface acres.

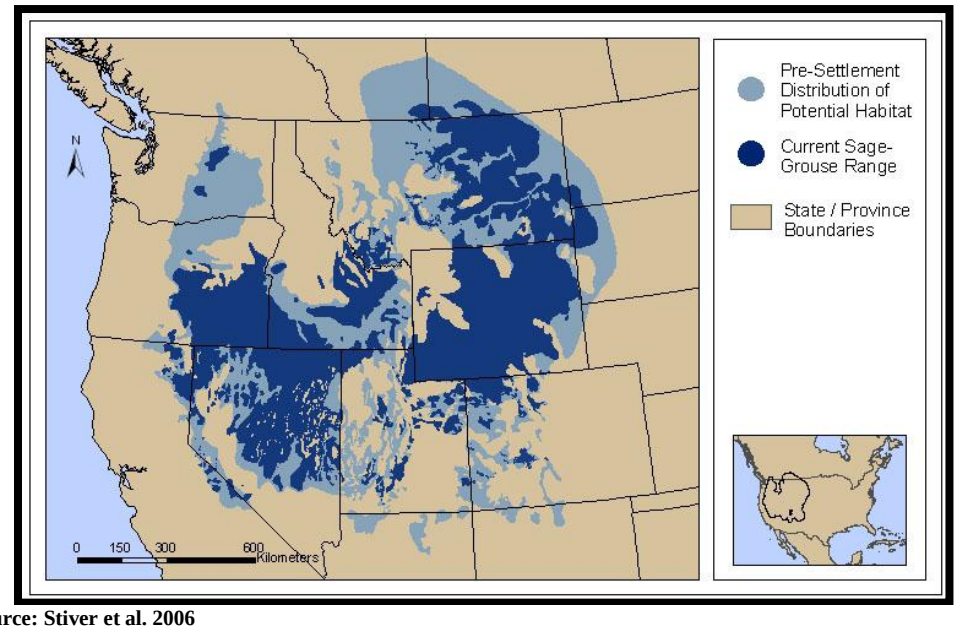
Values Considered: Greater sage-grouse habitat.

TABLE 1.
GREATER SAGE-GROUSE RELEVANCE AND IMPORTANCE EVALUATION

Relevance Value	Yes/No	Rationale for Determination
A significant historic, cultural, or scenic value	No	No significant historic or cultural values are known. Scenic values are moderate, but are similar to those of many other areas in the planning area.
A fish and wildlife resource	Yes	The nomination meets the relevance criterion for wildlife resources. The nominated area provides habitat for greater sage-grouse (1,067,000 BLM-administered surface acres), a BLM sensitive species, and the area has also been identified as a core area by Montana Fish, Wildlife, and Parks (MFWP).
A natural process or system	Yes	The nomination also meets the criterion for a natural system or process because of the condition of the sagebrush habitat in the nomination area.
Natural hazards	No	No natural hazards are known.
Importance Value	Yes/No	Rationale for Determination
More than locally significant qualities	No	Although the area contains habitat for greater sage-grouse conservation as noted in the nomination material, the area is not

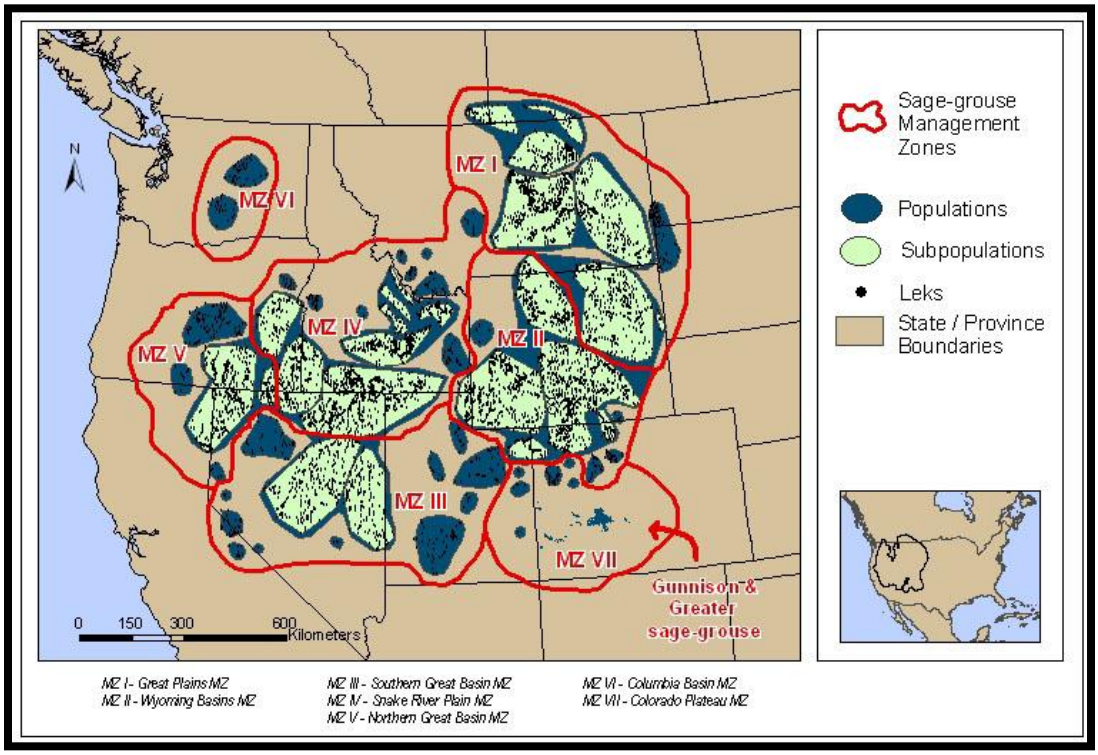
Relevance Value	Yes/No	Rationale for Determination
		significantly unique or more important than other habitat areas in this region. Greater sage-grouse are distributed throughout the western United States (Figure 1). The portion of the distribution in Montana, Wyoming, North Dakota, South Dakota, Alberta, and Saskatchewan are designated as Management Zone I (Stiver et al. 2006) (Figure 2). Management zones are delineations of greater sage-grouse populations and subpopulations within floristic zones with similar management issues. Within Management Zone I in Montana, MFWP designated core areas (MFWP 2012) and Wyoming Game and Fish designated core areas in Wyoming (WDFG 2010b) (Figures 3 and 4). In addition, Montana Audubon has also designated five important bird areas for sage-steppe associated birds, including greater sage-grouse, in Montana, most of which are contained within the MFWP core areas (Figure 5). While all of these areas are considered important to greater sage-grouse conservation, the areas are dispersed throughout the region and are not significantly unique to a specific region or planning unit. In addition, greater sage-grouse habitat in these core areas is owned by a number of different entities and habitat on BLM-administered lands is not distinct from habitat managed by other ownerships.
Special qualities	No	The area is not particularly fragile or sensitive to change as compared to other sites in Montana.
Warrants national priority or FLPMA protection	Yes	Satisfies national priority concerns.
Safety or public welfare concerns	No	No safety or public welfare concerns are known.
Poses a significant threat	No	No significant threats.

FIGURE 1.
GREATER SAGE-GROUSE DISTRIBUTION



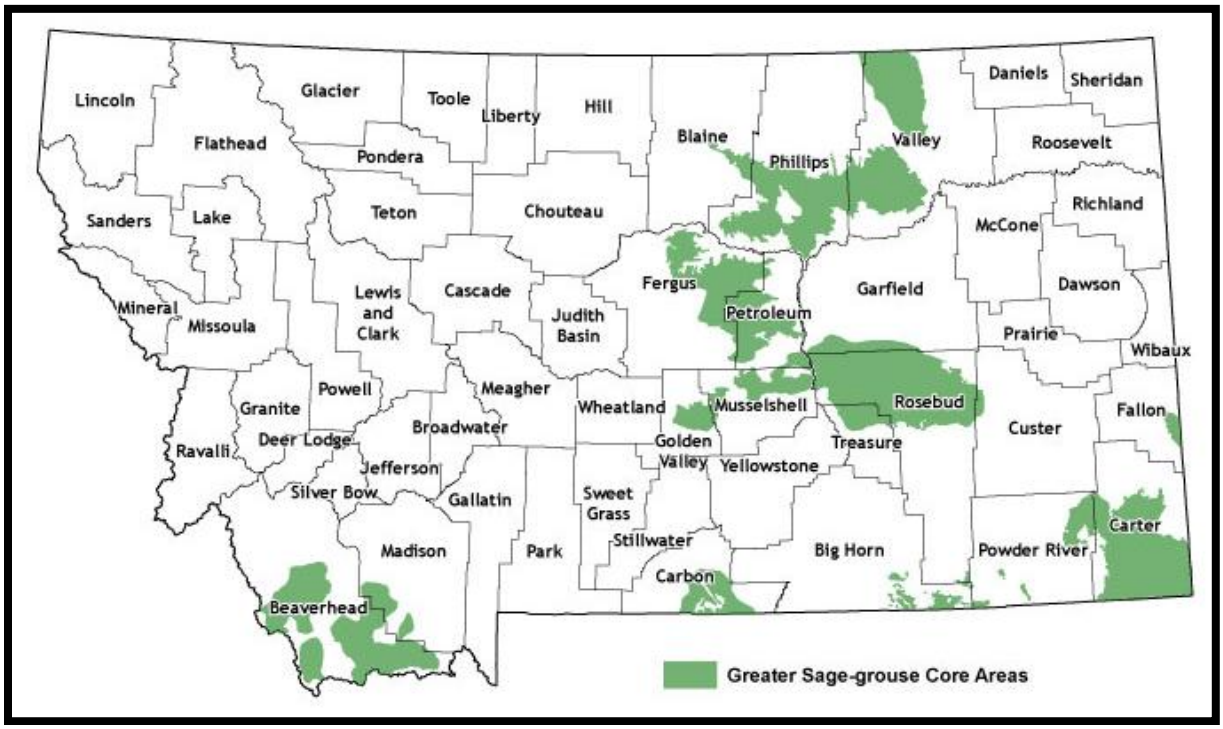
Source: Stiver et al. 2006

FIGURE 2.
GREATER SAGE-GROUSE MANAGEMENT ZONES



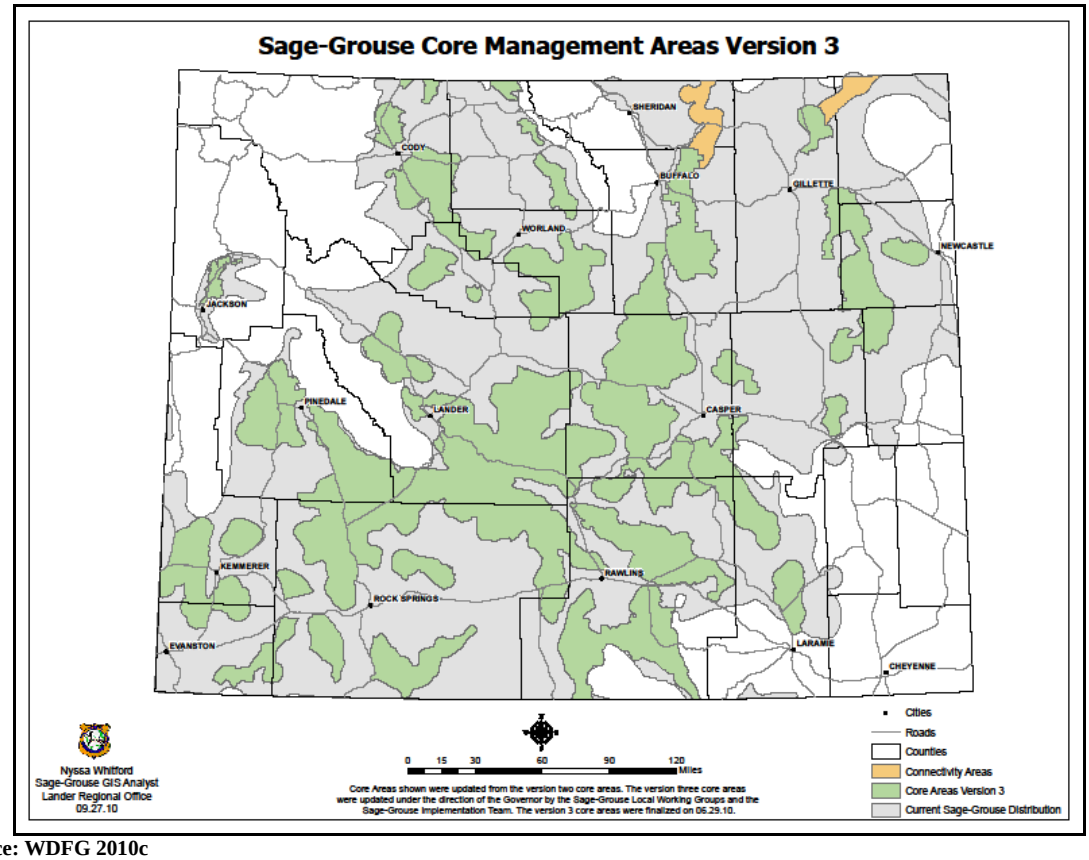
Source: Stiver et al. 2006

FIGURE 3.
GREATER SAGE-GROUSE CORE AREAS IN MONTANA



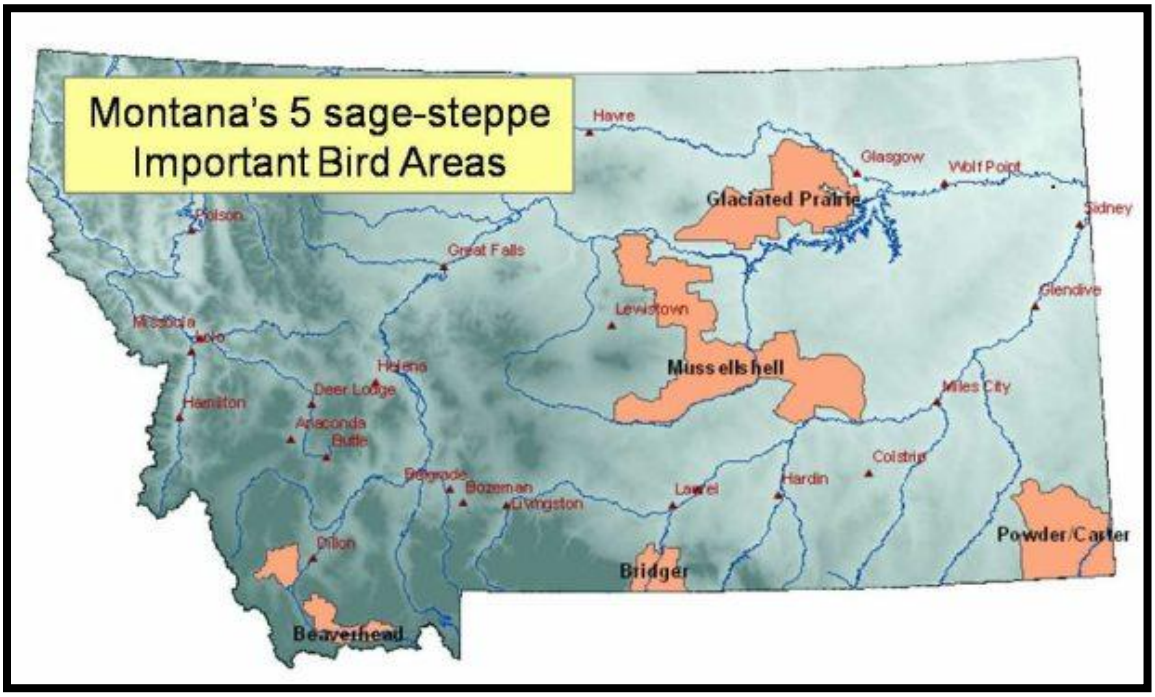
Source: MFWP 2012
Sage-grouse core areas are habitats associated with Montana's highest densities of sage-grouse (25 percent quartile), based on male counts, or sage-grouse lek complexes and associated habitat important to sage-grouse distribution (MFWP 2012).

FIGURE 4.
GREATER SAGE-GROUSE CORE AREAS IN WYOMING



Source: WDFG 2010c

FIGURE 5.
IMPORTANT BIRD AREAS IN MONTANA



Source: Montana Audubon 2012

EXISTING ACECs

There are 16 ACECs already designated within the planning area (BLM 1994b and 1999a). The existing ACECs were reevaluated to determine if they still meet the criteria to be ACECs. Two of the 16 ACECs (Howrey Island and Black-Footed Ferret Reintroduction) no longer have the values that made them relevant and one of the 16 does not require special management (Piping Plover), so these three are recommended for non-designation in this RMP. The values that make the remaining 13 areas ACECs have not changed, and they are carried forward as ACECs in the RMP (see Chapter 2, *Special Designation Areas*.)

HOWREY ISLAND

Originally designated for special wildlife values.

Relevance: Howrey Island does not meet any of the relevance criteria. When originally designated, the area met criterion 2 for providing habitat for a threatened species, the bald eagle. The bald eagle has been delisted and is no longer a threatened species.

Importance: Howrey Island meets importance criterion 2. The island has qualities and values that make it fragile, sensitive, and unique.

Summary: Howrey Island is approximately 592 public surface acres located in Treasure County. Because this area meets the importance criteria but not the relevance criteria, Howrey Island is not recommended for continued ACEC designation. (Note: this area is considered for special recreation management area designation in the RMP; Map 15).

BATTLE BUTTE BATTLEFIELD ACEC

Designated for unique historic values (Alternative A, 121 acres; Alternatives B through D, 237 acres; and Alternative E, 320 acres; Map 39).

Relevance: Battle Butte Battlefield meets relevance criterion 1. This significant site is 1 of 12 battlefields of the Sioux War. This site is of major interest to both national historians and history enthusiasts as well as the American Indian cultures of the Sioux, Crow, and Cheyenne Tribes.

Importance: Battle Butte Battlefield meets relevance criteria 1, 2, and 3. The site is part of a battle directly associated with Crazy Horse, one of the Sioux's main leaders. Battle Butte Battlefield contains irreplaceable information and is vulnerable to adverse change. The site is an exemplary example of Sioux War battle sites and possesses values that warrant protection as mandated by FLPMA.

Summary: The Battle Butte Battlefield is located in Rosebud County. It meets both the relevance and importance criteria and is recommended for continued ACEC designation. Battle Butte, or the Wolf Mountains Battle, was fought in January 8, 1877, in a blinding blizzard. Led by army scout Yellowstone Kelly, Colonel Nelson Miles commanded a force of 436 men composing seven companies of the 5th and 22nd infantries. They marched from the Tongue River Cantonment south along the Tongue River in search of American Indian winter villages. After 10 days march up the river, Miles' command encountered warriors from Crazy Horse's winter camp, which consisted of 1,200 inhabitants located south of Birney, Montana. The Sioux attacked west of the Tongue River and then occupied the high ground, firing down into the U.S. soldiers' positions. Miles ordered his men to attack uphill to take command of the high ground. Once Miles' men were able to hold the high ground, the Sioux's advantage was lost. Low on ammunition, the Sioux retreated upstream. In the ensuing blizzard, the Sioux were able to escape up the Tongue River. Both sides suffered casualties.

REYNOLDS BATTLEFIELD ACEC

Designated for significant historic values (Alternative A: 324 acres and Alternatives B through E: 922 acres; Map 39).

Relevance: Reynolds Battlefield meets relevance criterion 1. This significant site from the Sioux War and associated sites are of major interest to both national historians and history buffs as well as the American Indian cultures of the Sioux, Crow, and Cheyenne.

Importance: Reynolds Battlefield meets importance criteria 1, 2, and 3. The area is an exemplary example of Sioux War battle sites. The battlefield is rare, 1 of only 12, with this the first of the major battles. The Reynolds Battlefield possesses values that warrant protection as mandated by the FLPMA.

Summary: The Reynolds Battlefield is located in Custer County. It is the first engagement of 12 major battles of the Sioux War of 1876 to 1877. The Big Horn Expedition left Fort Fetterman, Wyoming, in mid-February and endured almost continual harsh winter weather with sub-zero temperatures. Marching north up the Powder River drainage, they crossed into Montana near Decker and proceeded down the Tongue River to Hanging Woman Creek. There, Crook ordered Colonel Joseph J. Reynolds, 3rd Cavalry, with six companies of the 2nd and 3rd Cavalry to attack the only village they had found thus far, a village to the east on the Powder River. Reynolds attacked the village at dawn on March 17, 1876. In the early morning battle, the troops captured the village, burning all of the camp tepees. Most of the camp inhabitants were able to escape. Some 800 ponies were also captured. The village retaliated by firing down into the army positions from a high bluff to the west. The troops withdrew under heavy fire. Their hasty withdrawal, ordered by Reynolds, resulted in four army dead left in the field. Later that night, the village recaptured their horse herd. Crook was enraged by these events and ordered Reynolds court-martialed. One damaging aspect of this battle was the fact that the village was not Sitting Bull's Sioux camp, as originally thought, but a Cheyenne camp on their way back to the reservation. This unprovoked attack on a peaceable village turned the Cheyenne against the United States government. The Cheyenne sided with the Sioux and participated in most of the subsequent phases of the war.

Reynolds Battlefield meets the relevance and importance criteria and is recommended for continued ACEC designation.

BIG SHEEP MOUNTAIN ACEC

Designated for unique cultural values (363 BLM-administered acres; Map 39).

Relevance: The site meets relevance criterion 1 as a significant cultural resource property. The significance is derived from the site's unique properties and potential to contribute important scientific information on nearly the full range of cultural traditions from the Paleo-Indian period to the Late Plains Archaic period.

Importance: The site meets importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. Special management attention is needed to preserve the buried deposits for maximum value to the scientific community.

Summary: The site (24PE210) meets both the relevance and importance criteria and is recommended for continued ACEC designation. The site is located in Prairie County and measures 360 acres in size. It is considered eligible for nomination to the NRHP. The site is considered significant for its span of cultural periods over some 10,000 years. The site contains important information on prehistory and history of the American Indian in the plains environment. A CRMP proposed for the site will take the place of an ACEC activity plan. The CRMP will allocate the site to conservation use. BLM management objectives should involve the long-term conservation of this site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

HOE ACEC

Designated for unique cultural values (147 BLM-administered acres; Map 39).

Relevance: The site meets relevance criterion 1 as a significant cultural resource property. The significance is derived from the site's unique properties and its potential to contribute important scientific information regarding possible agricultural traditions from the Late Prehistoric period that relate to the Middle Missouri tradition.

Importance: The site meets importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. It is important that buried deposits be preserved to be of maximum value to the scientific community. The need for preservation necessitates special management attention.

Summary: The site (24PE263) meets both the relevance and importance criteria and is recommended for continued ACEC designation. Located in Prairie County, the site measures 144 acres in size and has been determined eligible for nomination to the NRHP. It is significant for late prehistoric agricultural subsistence strategies and an associated habitation site. The site represents the westernmost findings of possible agricultural practices of the middle Missouri tradition. It contains important information on prehistory of the American Indian in the plains environment. A cultural resource plan will be developed and take the place of an ACEC activity plan and allocate the site to conservation use. BLM management objectives should involve the long-term conservation of the site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

JORDAN BISON KILL ACEC

Designated for unique cultural values (160 BLM-administered acres; Map 39).

Relevance: The site meets relevance criterion 1 as a significant cultural resource property. The significance is derived from the site's unique properties and potential to contribute important scientific information on bison procurement and subsistence strategies from the Late Prehistoric period.

Importance: The site meets importance criteria 1, 2, and 3. The site possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of the site's significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. Special management attention is needed to preserve the site's buried deposits, for maximum value to the scientific community.

Summary: The site (24GF271) meets both the relevance and importance criteria and is recommended for continued ACEC designation. Located in Garfield County, the 160-acre site is considered eligible for nomination to the NRHP. It is significant for Late Prehistoric period bison kill procurement and subsistence strategies and associated habitation and processing site. The site contains important information on prehistory of the American Indian in the plains environment. The site has a CRMP that will be updated and take the place of an ACEC activity plan. The site is allocated to scientific use but will be reallocated to conservation use. BLM management objectives should involve the long-term conservation of the site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

POWDER RIVER DEPOT ACEC

Designated for unique cultural values (1,401 BLM-administered acres; Map 39).
Relevance: The site meets relevance criterion 1 as a significant cultural resource property. The site has important scientific information on the historic use of the area by the late 19th century military. The archeological findings can be compared with written records.

Importance: The site meets importance criteria 1, 2, and 3. The site possesses information that is both regionally and nationally significant. The site is fragile, sensitive, irreplaceable, unique, and vulnerable to adverse change, vandalism, and unauthorized metal-detector use. Natural or human-caused changes could result in the loss of the significant scientific data. In addition, the site warrants allocation to conservation use, which would carry out the mandates of cultural resource protection within FLPMA and the cultural resource management planning system. Special management attention is needed to study the historic information at the site, which necessitates preservation of buried deposits for maximum benefits to the scientific community.

Summary: The site meets both the relevance and importance criteria and is recommended for continued ACEC designation. The site (24PE231) is 1,386 acres in size and has been determined eligible for nomination to the NRHP. The area includes Sheridan Butte located along the Yellowstone River, where historic graffiti dating to the Indian War period is on the butte's rock outcrops. The Powder River Depot was the location of General Terry's supply depot that supplied General Custer's troops before they headed to the Little Big Horn River. It was the main supply depot for the armies that pursued the fleeing Sioux and Cheyenne Tribes throughout the summer of 1876. The site contains a wealth of archeological information on the encampment and the everyday life of the soldiers of that period. The numerous buried metallic artifacts are subject to looting and vandalism through unauthorized use of metal detectors. A CRMP will take the place of an ACEC activity plan. The CRMP will allocate the site to conservation use. BLM management objectives should involve the long-term conservation of this site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

SELINE ACEC

Designated for unique cultural values (80 BLM-administered acres; Map 39).

Relevance: The site meets relevance criterion 1 because it is a significant cultural resource property. The significance is derived from the site's unique properties and information potential that can contribute important scientific information on cultural traditions from the middle prehistoric period.

Importance: The site meets importance criteria 1, 2, and 3. It possesses information that is regionally significant, fragile, sensitive, irreplaceable, unique, and vulnerable to vandalism and adverse change. Natural or human-caused changes could result in the loss of significant scientific data. In addition, the site warrants allocation to conservation use, carrying out the mandates of cultural resource protection within FLPMA, and the cultural resource management planning system. Special management attention is needed to preserve the site's buried deposits to provide information to the scientific community.

Summary: The site (24DW250) meets both the relevance and importance criteria and is recommended for continued ACEC designation. Located in Dawson County, the site measures some 80 acres in size and is considered eligible for nomination to the NRHP. The site possesses important information on prehistory of the American Indian in the plains environment. The CRMP for the area, when updated, will take the place of an ACEC activity plan. The plan will allocate the site to conservation use. BLM management objectives should involve the long-term conservation of this site for future generations to study and enjoy. Specific research questions could be formulated in order to study artifacts and records from the site, which could be used to demonstrate a number of prehistoric activities that were present or conducted at the site.

SMOKY BUTTE ACEC

Designated for unique geological values (80 BLM-administered acres; Map 39).

Relevance: Smoky Butte is a 250-foot high prominence located about eight miles west of Jordan in Garfield County. The Smoky Butte area meets relevance criteria 1 and 3. The area has regionally significant scenic values. It is a landmark feature that can be seen for miles; a striking contrast to the surrounding rolling plains. It was used by early day travelers as a guide when traveling through the area. Pioneers traveling the "Green Trail" west to Lewistown, Montana, could see Smoky Butte for a considerable distance (BLM 1995). It is considered

to possess significant local and regional scenic and historic values. The rocks that are present at Smoky Butte consist of a rare mineral assemblage.

The area is an excellent example of the geologic process of igneous intrusion. Smoky Butte is located in the middle of a 2-mile long line of narrow igneous intrusive dikes and plug-like features. These igneous intrusives form a narrow, linear group of low buttes and knobs, oriented northeast to southwest, that rise out of the otherwise rolling prairie. The igneous rocks were intruded into the flat-lying sedimentary rocks of the Paleocene Fort Union formation and Late Cretaceous Hell Creek sandstones and were emplaced along the axis (obliquely) of the Blood Creek Syncline (Mitchell, Platt, and Downey 1987). The intrusive igneous rocks at Smoky Butte are hard and resist erosion, as do the adjacent sedimentary rocks, which were slightly baked and hardened by the hot igneous intrusive. This hardness "holds up" the buttes by providing more resistance to erosion than the surrounding sedimentary rocks. Although Smoky Butte is an interesting example of igneous intrusion and many geologic features associated with such an event are present there, the primary importance of the butte lies in the unique mineral assemblage of the igneous rocks.

The igneous rocks at Smoky Butte have been categorized as a lamproite, which is a type of volcanic or hypabyssal igneous rock. Matson (1960) noted that one of the most striking features of the intrusive rock complex was rocks that were high in potassium and titanium and similar to rocks found at West Kimberly, Australia, and the Leucite Hills of Wyoming. Matson (1960) and Velde (1975) observed that the igneous rock is a mixture of minerals. Velde (1975) further classified it as an armalcolite-ti-phlogopite-iopside-analcite-bearing lamproite. Velde's analysis revealed that the Smoky Butte lamproite contains a rare mineral called armalcolite, a mineral found in samples of rock from the moon (1975). Velde (1975) reported that the armalcolite at Smoky Butte has the closest composition to the lunar armalcolite of any known terrestrial rocks. In addition, Wagner and Velde (1986) discovered that the mineral davanite, an alkali titanosilicate mineral found in Siberia, is also present in the Smoky Butte lamproite. Smoky Butte contains a rare mineralogic assemblage and is an excellent example of the geologic process of igneous intrusion.

Importance: Smoky Butte meets importance criteria 1 and 2. Smoky Butte has more than locally significant qualities that give it special worth, consequence, and meaning. Scientists from the United States, Canada, and France have studied the special geologic features present in this area. The Smoky Butte area has been the subject of an M.S. thesis study, and a study published by the USGS. It has been reported in scientific trade journals, such as American Mineralogist, Journal of Petrology, and Earth and Planetary Science Letters. Smoky Butte is discussed in Mitchell and Bergman's *Petrology of Lamproites* (1991), published by Plenum Press, and Alt and Hyndmans' *Roadside Geology of Montana* (1986), published by Mountain Press Publishing Company. The area was also the subject of a special July 1989 field trip of the 28th International Geological Congress, which was studying the Montana High Potassium Igneous Province.

Information gleaned from these rocks has been used to draw conclusions and advance theories about the origin of the rocks and the composition and geotectonics of the mantle of the earth. Scientists believe that the source material for the lamproite at Smoky Butte is derived from the earth's mantle; because the crust has been estimated to be about 45 kilometers thick in this area (Velde 1975), this conclusion would mean the material originated deep in the earth's crust.

The Smoky Butte lamproite is also unique because it is the easternmost known intrusive feature in Montana. The nearest intrusive rocks to Smoky Butte occur 55 to 60 miles to the southwest, on Porcupine Dome and near Ingomar Dome (Matson 1960). Smoky Butte is also the youngest, dated at 27 million years (Oligocene), and taken together with the Missouri Breaks diatremes, may represent the last phases of igneous activity in the north-central Montana alkalic province (Marvin, Hearn, Mehnert, Naeser, Zartman, and Lindsey 1980). Smoky Butte would be vulnerable to damage from exploration and mining activities carried out under a locatable mineral entry (mining claim). Smoky Butte was quarried many years ago for riprap to face a nearby dam. The present quarry site is small and actually provides an excellent exposure of the rocks that compose Smoky Butte. However, further mining activity would not improve viewing or enhance research and would only serve to destroy the surface exposure of this rare geologic feature.

Summary: Smoky Butte is 80 acres in size and is located in Garfield County. It meets both the relevance and importance criteria and is recommended for continued ACEC designation. Smoky Butte contains public land with a variety of unique values and needs protection and special management attention.

FINGER BUTTES ACEC

Designated for scenery (1,520 BLM-administered acres; Map 39).

Relevance: Finger Buttes meets relevance criteria 1 and 2. The area represents more than badlands topography, a rather typical topographic type for southeastern Montana. Finger Buttes has scenic qualities of color, line, and form consisting of bare sandstone pinnacle topography that is outlined on the horizon, creating an interesting view. These scenic values are unique and do not exist elsewhere in the local or regional area.

Importance: Finger Buttes meets importance criteria 1 and 2. The area consists of a series of pipestem and tower sandstone outcrops not found elsewhere in the area. The Finger Buttes area is fragile, irreplaceable, and vulnerable to adverse change.

Summary: Finger Buttes meets both relevance and importance criteria and is recommended for continued ACEC designation. It is approximately 1,520 public surface acres located in Carter County. There is no legal access into the area, which consists of tall, slim, smokestack-like tan and gray sandstone monuments, towers, and prominences. These buttes are formed in the Arikaree formation, a formation that appears in southeastern Montana. The area possesses outstanding scenery.

ASH CREEK DIVIDE ACEC

Designated for paleontological values (7,921 BLM-administered acres; Map 39).

Relevance: The area meets relevance criterion 3, "a natural process or system." The Hell Creek geologic formation and associated fossils preserve a record of the end of the dinosaur age at the close of the Cretaceous Period. The area preserves a high-quality record of this period, which is relatively rare worldwide. The area has produced fossils for display and research, and field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Ash Creek Divide area meets importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be significant to the scientific community within the United States as well as worldwide. Comparison of fossils and other data collected here has provided scientists with insight about the end of the dinosaur age, such as the types of animals and plants present, the environment in which they lived, and the cause of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. In addition, the resource is best served by public ownership of the land, which would ensure access for the scientific community.

Summary: Ash Creek Divide meets both the relevance and importance criteria and is recommended for continued ACEC designation. The Hell Creek formation is significant for paleontological resources spanning the end of the Cretaceous Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record just before the mass extinction of the dinosaurs and other life forms. The Ash Creek Divide area is an example of this record, owing to the good exposures of the bedrock and the preservation of the fossils. As a result of the quality bedrock exposure and the preservation of the fossils in this area, the Ash Creek Divide area provides an example of this fossil record. Several scientific papers have been written based on research done in this area. The area will continue to provide information as new material weathers out of the rock.

BUG CREEK ACEC

Designated for paleontological values (3,837 BLM-administered acres; Map 39).
Relevance: The area meets relevance criterion 3, a "natural process or system." The geologic formations and the associated fossils are a rare example of a continuous record of the end of the dinosaur age (Cretaceous Period) and the beginning of the age of the mammals during the Tertiary Period. The area preserves one of the best records of this period. The area has produced fossils for display and research. Field studies of depositional patterns and earth history have taken place within the area. The necessary combination of bedrock exposures of

the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Bug Creek area meets importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be highly significant to the national and global scientific communities. Comparison of fossils and other data collected here has given scientists insight about the end of the dinosaur age and the start of the mammal age, such as the types of animals and plants present, the environment in which they lived, and the cause and effects of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. Special management attention is needed to afford proper protection. In addition, the resource is best served by public ownership of the land, thereby assuring access to the scientific community.

Summary: Bug Creek meets both the relevance and importance criteria and is recommended for continued ACEC designation. The Hell Creek formation and the overlying Tullock member of the Fort Union formation are significant for paleontological resources spanning the time from the late Cretaceous Period to the early Tertiary Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record before, during, and after the mass extinction of the dinosaurs and other life forms. As a result of the extensive exposures of the bedrock and the preservation of the fossils, the Bug Creek area is one of the best and most studied examples of this record. Many scientific papers have been written based on research from this area. The area will continue to provide information as new material weathers out of the rock. Protection of the area is important to preserve the paleontological values in this significant area.

HELL CREEK ACEC

Designated for paleontological values and the Hell Creek National Natural Landmark (19,373 BLM-administered acres; Map 39).

Relevance: The area meets relevance criterion 3, a "natural process or system." The geologic formations and the associated fossils are a rare example of a continuous record of the end of the dinosaur age at the close of the Cretaceous Period and the subsequent beginning of the age of the mammals during the start of the Tertiary Period. The area preserves one of the best records of this period. The area has produced fossils for display and research. Field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and quality preservation of fossils provides research and collecting opportunities rare for this geological time period.

Importance: The Hell Creek area meets importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be highly significant to the national and global scientific communities. Comparison of fossils and other data collected here has given scientists insight about the end of the dinosaur age and the start of the mammal age, such as the types of animals and plants present, the environment in which they lived, and the cause and effects of the mass extinction at the close of the Cretaceous Period. The fossil material and information is fragile and needs to be researched in place. Special management attention is needed to afford proper protection. In addition, the resource is best served by public ownership of the land, which would ensure access for the scientific community.

Summary: Hell Creek meets both the relevance and importance criteria and is recommended for continued ACEC designation. The Hell Creek formation and the overlying Tullock member of the Fort Union formation are significant for their paleontological resources spanning the time from the late Cretaceous Period to the early Tertiary Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record before, during, and after the mass extinction of the dinosaurs and other life forms. As a result of the extensive exposures of the bedrock and the preservation of the fossils, the Hell Creek area is probably the best and most studied example of this record. The area has provided museums with displays of dinosaurs and scientific papers based on research from this area. Approximately one-half of the Hell Creek National Natural Landmark is included within the boundaries of this area. The area will continue to provide information as new material weathers out of the rock. Protection of the area is important to preserve the paleontological values in this significant area.

SAND ARROYO ACEC

Designated for paleontological values (9,052 BLM-administered acres; Map 39).

*Relevance***:** The area meets relevance criterion 3, a "natural process or system." The geologic formations and the associated fossils are a rare example of a continuous record of the end of the dinosaur age at the close of the Cretaceous Period and the subsequent beginning of the age of the mammals during the start of the Tertiary Period. The area preserves a good record of this period and is relatively rare worldwide. The area has produced fossils for display and research. Field studies of depositional patterns and earth history have occurred within the area. The necessary combination of bedrock exposure of the proper age and good preservation of fossils provides research and collecting opportunities rare for this geological period.

Importance: The Sand Arroyo area meets importance criteria 1 and 2. It has produced fossils and provided research data that has proven to be highly significant to the national and global scientific communities. Comparison of fossils and other data collected here has given scientists insight about the end of the dinosaur age and the start of the mammal age, such as the types of animals and plants present, the environment in which they lived, and the cause and effects of the mass extinction at the close of the Cretaceous Period. This fossil material and information is fragile and needs to be researched in place. Special management attention is needed to afford proper protection. In addition, the resource is best served by public ownership of the land, which would ensure access for the scientific community.

Summary: Sand Arroyo meets both the relevance and importance criteria and is recommended for continued ACEC designation. The Hell Creek formation and the overlying Tullock member of the Fort Union formation are significant for their paleontological resources spanning the late Cretaceous Period to the early Tertiary Period. The outcrops of these beds are some of the few places in the world that preserve a continuous record before, during, and after the mass extinction of the dinosaurs and other forms of life. The Sand Arroyo area is a good example of this record, owing to the extensive exposures of the bedrock and the preservation of the fossils. A number of scientific papers have been written based on research done in this area. The area will continue to provide information as new material weathers out of the rock. Protection of the area is important to preserve the significant paleontological values.

BLACK-FOOTED FERRET REINTRODUCTION ACEC

Designated for its potential as a black-footed ferret reintroduction area as well as habitat for associated wildlife species (11,221 BLM-administered acres; Map 39).

Relevance: The area no longer meets the meets relevance criteria. The BLM-administered lands do not meet the acreage requirement to be defined as potential habitat for the black-footed ferret. In order to be considered as potential habitat for the black-footed ferret reintroduction, prairie dog complexes need to be within 1.5 km of each other and comprise a total of 1,500 more acres (Biggens 1993, Biggens et al. 2006). In addition and as provided in the introduction section of this appendix, the ACEC designation can only be made on BLM-administered surface estate. The BLM-administered surface estate provides less than 100 public acres of active prairie dog complexes within the current ACEC boundary. Additionally, these complexes on BLM-administered surface estate are also located greater than 1.5 Km from each other.

Importance: The area is not significantly unique or more important than other prairie dog habitat areas in this region. While all of these areas are considered important for the consideration of black-footed ferret reintroduction, the areas are dispersed throughout the region and are not significantly unique to a specific region or planning unit. In addition, this area is owned by a number of different entities and habitat on BLM-administered lands is not distinct from habitat managed by other ownerships.

Summary: The area does not meet the relevance and importance criteria. In addition, the area does not require special management beyond standard provisions established by this RMP. This RMP provides management actions for black-footed ferret habitat and prairie dog habitat. The BLM would work with the Montana Black-footed Ferret and Prairie Dog Working Groups to identify potential black-footed ferret reintroduction sites in

the planning area thus this particular area does not require special management beyond our existing management.

PIPING PLOVER ACEC

Designated for a piping plover nesting area (15 BLM-administered acres; Map 39).

Relevance: The area is habitat for a threatened species and so meets the relevance criteria.

Importance: The area meets all of the importance criteria. Habitat for the piping plover has substantial significance and value because the area is of regional significance (due to the presence of a threatened species); saline wetlands are somewhat rare because they are fragile, sensitive, unique, and vulnerable to adverse change; and inhabitancy by a threatened species warrants protection under the ESA, as amended ,and complies with FLPMA guidelines.

Summary: The area meets both the relevance and importance criteria but the area does not require special management beyond standard provisions established by this RMP. This RMP already provides specific management actions for the protection and maintenance of piping lover habitat. In addition, due to piping plover being a threatened species, the area will receive protections which include consultation with U.S. Fish and Wildlife Service on any proposed action within the area.

WILD AND SCENIC RIVERS

The following is an evaluation of planning area river segments as they relate to eligibility, suitability, and classification criteria in the National Wild and Scenic Rivers System (NWSRS).

INTRODUCTION

Section 5(d)(1) of the Wild and Scenic Rivers Act (WSRA) of 1968, as amended (16 U.S.C. 1271 et seq.), directs federal agencies to consider potential wild and scenic rivers in their land and water planning processes*:*

"In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas…"

WHAT IS A WILD AND SCENIC RIVER?

Congress enacted the WSRA to provide a national policy for preserving and protecting selected rivers and river segments in their free-flowing condition for the benefit and enjoyment of present and future generations. The WSRA provides criteria that must be considered during the analysis. As per the WSRA, eligibility for inclusion in the NWSRS requires a river or river segment that is free flowing, within its immediate environment, and which contains one or more outstandingly remarkable values.

Free flowing is defined in Section 16(b) of the WSRA:

> "…existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the NWSRS shall not automatically bar its consideration for such inclusion…"

The term "outstandingly remarkable" is not clearly defined in the WSRA. Generally, outstandingly remarkable means something that is more than ordinary when considered within a regional (planning-area wide) context. In order for the river to be considered eligible in this study, the outstandingly remarkable value or values must occur on BLM-administered public lands within 0.25 miles of the river.

Outstandingly remarkable values consist of the elements described below.

Scenic: the landscape elements of landform, vegetation, water, color, and related factors must result in notable or exemplary visual features or attractions within the geographic region. As per the BLM Visual Resource Inventory Handbook, H-8410-1, which may be used in assessing visual quality and evaluating the extent of development upon scenic values, the rating area must be scenic quality "A". When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and length of time negative intrusions are viewed may be considered. Scenery and visual attractions may be highly diverse over the majority of the river segment length and not common to other rivers in the geographic region.

Recreational: recreational opportunities are, or have the potential to be, unusual enough to attract visitors to the geographic region. Visitors are willing to travel long distances to use the river resources for recreational purposes. Recreation-related opportunities could include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. Interpretive opportunities may be exceptional and attract or have the potential to attract visitors from outside the geographic area. The river may provide, or have the potential to provide, settings for national or regional commercial usage or competitive events. In addition, the river may be eligible if it is determined to provide a critically important regional recreation opportunity or be a significant component of a regional recreation opportunity spectrum setting.

Geologic: the river or the area within the river corridor contains an example or examples of a geologic feature, process, or phenomenon that is rare, unusual, or unique to the geographic region. The features may be in an unusually active stage of development, represent a textbook example, or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, and other geologic structures).

Fish: fish values may be judged on the relative merits of either fish populations or habitat or a combination of these river-related conditions.

Populations: the river is nationally or regionally one of the top producers of resident, indigenous, or anadromous fish species. Of particular significance may be the presence of wild or unique stocks or populations of state, federally listed, or candidate threatened and endangered species.

Habitat: the river provides exceptionally high quality habitat for fish species indigenous to the region. Of particular significance is habitat for state, federally listed, or candidate threatened and endangered species.

Wildlife: wildlife values may be judged on the relative merits of either wildlife populations or habitat or a combination of these conditions.

Populations: the river or area within the river corridor contains nationally or regionally important populations of resident or indigenous wildlife species dependent on the river environment. Of particular significance may be species considered unique or populations of state, federally listed, or candidate threatened and endangered species.

Habitat: the river or area within the river corridor provides exceptionally high quality habitat for wildlife of national or regional significance or may provide unique habitat or a critical link in habitat conditions for state, federally listed, or candidate threatened and endangered species. Contiguous habitat conditions are such that the biological needs of the species are met.

Cultural: the river or area within the river corridor contains a site or sites where there is evidence of occupation or use by American Indians. Sites must be rare, have unusual characteristics, or exceptional human-interest values. Sites may have national or regional importance for interpreting prehistory; may be rare; may represent an area where culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups; or may have been used by cultural groups for rare or sacred purposes.

Historic: the river or area within the corridor contains a site or feature associated with a significant event, an important person, or a cultural activity of the past that was rare or unusual in the region. A historic site or

feature in most cases is 50 years old or older. Sites or features listed in, or eligible for inclusion in, the NRHP may be of particular significance.

Other Similar Values: while no specific evaluation guidelines have been developed for the other similar values category, additional values deemed relevant to the eligibility of the river segment should be considered in a manner consistent with the previous guidance, which would include, but would not be limited to, hydrologic, ecologic or biologic diversity, paleontologic, botanic, and scientific values.
No rivers in the planning area are currently managed under the WSRA.

EVALUATION PROCESS AND RESULTS

The wild and scenic river study process comprises two main components: the inventory phase and the study phase. The inventory phase includes identifying eligible river and stream segments, assigning tentative classification (wild, scenic, or recreational), and describing protective management for the eligible segments. The study phase includes determining the suitability of eligible segments for inclusion in the NWSRS and describing interim management measures. The inventory was conducted in 2008, during the data-gathering stage of the RMP revision, and the study phase was done during formulation of this RMP.

INVENTORY PHASE

The purpose of the inventory is to identify eligible rivers and river segments in the planning area and assign them a tentative classification. The WSRA directs agencies to consider a wide variety of internal and external sources to identify potentially eligible rivers. The goal is to avoid overlooking river segments that could be included in the NWSR. In cases where a particular river segment is predominantly nonfederal in ownership and contains interspersed BLM-administered lands, the BLM shall evaluate only the BLM-administered segments and defer to the state or private landowners' discretion regarding their determination of eligibility.

Resource specialists from the MCFO were consulted to conduct the wild and scenic rivers inventory in support of the RMP. The interdisciplinary team comprised BLM staff specialists in lands and realty; wildlife, fisheries, and riparian biology; range and riparian resources; recreation; visual resources; cultural and historical resources; minerals; and geology.

ELIGIBILITY

The BLM applies standard criteria to identified river segments to determine eligibility. There are several sources generally used to identify potentially eligible rivers, as described below.

- The Nationwide Rivers Inventory (NPS 2009) was initially completed in 1982 and is maintained and periodically updated by the National Park Service. Additions have been made following BLM and United States Forest Service inventories completed as part of each agency's land use planning processes. This inventory contains a listing of more than 3,400 free-flowing river segments in the United States believed to possess one or more outstandingly remarkable natural or cultural values judged to be of more than local or regional significance. A review of this list did not identify any rivers or river segments within the planning area.
- The Yellowstone River downstream from Forsyth to the state line with North Dakota is listed by MFWP as a blue ribbon fishery.
- MFWP's *Statewide Comprehensive Outdoor Recreation Plan 2008 to 2012* outlines Montana's 5-year plan for outdoor recreation management, conservation, and development (MFWP 2008). It provides the strategic framework for recreation facility managers to use as a guideline in planning and prioritizing resources for staff and funding and includes a timeline for implementation.
- Public scoping during the RMP revision process may identify specific river segments for consideration. No river segments in the planning area were identified using this source.

CLASSIFICATION

Once a river segment is considered eligible, it is assigned a tentative classification. Section 2(b) of the WSRA defines three classes for these rivers, as described below.

- Wild river areas are those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail. These areas contain watersheds or shorelines essentially primitive and waters unpolluted and represent vestiges of primitive America. "Wild" means undeveloped; roads, dams, or diversion works are generally absent from a quarter-mile corridor on both sides of the river.
- Scenic river areas are those rivers or sections of rivers that are accessible in places via road but generally free of impoundments and containing shorelines or watersheds still largely primitive and shorelines largely undeveloped. Scenic does not necessarily mean the river corridor has to have scenery as an outstandingly remarkable value, but it does mean the river segment may contain more development (except for major dams or diversion works) than a wild segment and less development than a recreational segment. For example, roads may cross the river in places but generally do not run parallel to it. In certain cases, however, the presence of an unpaved, parallel road that is well screened from the river by vegetation could retain qualification for classification as a scenic river area.
- Recreational river areas are those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past. Parallel roads or railroads or small dams or diversions can be allowed in this classification. A recreational river area classification does not imply that the river will be managed or prioritized for recreational use or development.

The classification assigned during the inventory phase is tentative. Final classification and designation of a river segment as part of the NWSRS are congressional legislative determinations.

STUDY PHASE

The suitability evaluation does not result in actual designation but only a suitability determination for designation. Only Congress can designate a wild and scenic river. In some instances, the Secretary of the Interior may designate a wild and scenic river when the governor of a state, under certain conditions, petitions for a river to be designated. Congress would ultimately choose the legislative language if any suitable segments are presented before them. Water-protection strategies and measures to meet the purposes of the WSRA would be the responsibility of Congress in any legislation proposed. Rivers found unsuitable would be dropped from further consideration and would be managed according to the objectives outlined in the RMP.

The preliminary suitability evaluation is completed as the RMP is prepared, and impacts that would occur from designation and non-designation of the eligible river segments would be analyzed in the EIS associated with the RMP. Public review and comment on preliminary suitability determinations included in the Draft RMP would be considered before the BLM makes final suitability determinations in the Proposed RMP/Final EIS (PRMP/FEIS).

SUITABILITY CRITERIA

The following eight factors, identified in BLM Manual Section 8351, are considered for each eligible river segment during the suitability determination:

- characteristics that do or do not make the river a worthy addition to the NWSRS;
- the status of land ownership, minerals, use in the area (including the amount of private land involved) and associated or incompatible uses;
- reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS and values that would be foreclosed or diminished if the area were not protected as part of the NWSRS;

- federal, state, tribal, local, public, or other interests in designation or nondesignation of the river, including the extent to which the agency proposes that administration of the river, including the costs thereof, be shared by state, local, or other agencies and individuals;
- estimated cost to the United States of acquiring necessary lands, interests in lands, and administering the area should it be added to the NWSRS;
- the federal agency's ability or other mechanisms to protect and manage the identified river-related values other than designation into the NWSRS;
- historical or existing rights that could be adversely affected with designation; and other issues and concerns, if any.

INTERIM MANAGEMENT OF SUITABLE SEGMENTS

The WSRA requires that interim management measures be developed to protect the free-flowing nature, outstandingly remarkable values, and recommended classification of suitable segments until Congress acts on the designation. Identification of Eligible River Segments

To avoid overlooking potentially eligible river segments, a combination of sources was used. The primary source was the BLM's geographic information system rivers and streams layer, which is a comprehensive list of potentially free-flowing waterbodies within the planning area. The geographic information system was cross-referenced with additional sources, which include the Nationwide Rivers Inventory (NPS 2009) and the *Statewide Comprehensive Outdoor Recreation Plan 2008 to 2012* (MFWP 2008).

EVALUATION

From these sources, the BLM interdisciplinary team compiled an inventory of all rivers on BLM-administered surface lands in the planning area. The team focused on BLM-administered lands, per direction contained within BLM Manual 8351, Wild and Scenic Rivers-Policy and Program Direction for Identification, Evaluation, and Management, which states:

> "In cases where a particular river segment is predominantly non-Federal in ownership and contains interspersed BLM-administered lands, BLM shall evaluate only its segment as to eligibility and defer to the State or to the private landowners' discretion as to their determination of eligibility (p. 10)."

Initial inventory identified 144 rivers or streams for further evaluation, and 42 of these rivers or streams were determined to have 99 segments of BLM-administered land along their shorelines (Table 2). Additional evaluation was conducted to determine which of the 42 rivers or streams met the free-flowing criteria and contained any outstandingly remarkable values, as defined in the WSRA of 1968, as amended. To help with the evaluation, the designated Upper Missouri Wild and Scenic River located in Central Montana, with important fisheries, was used for comparison.

RESULTS IN THE PLANNING AREA

Free Flowing

Of the 99 segments identified in the planning area, all were determined to be free flowing along some part of their stretch.

Outstanding Remarkable Values

In order to be further evaluated for Wild and Scenic River status, the river and its adjacent land area must have one or more outstanding remarkable values. To have "outstanding remarkable values" the river-related values must be unique, rare or exemplary. Four river segments, two along the Yellowstone River and two along the Missouri River (downstream of the Fort Peck Reservoir dam), were evaluated further due to their association with the Lewis and Clark National Historic Trails and the potential for presence of pallid sturgeon habitat (an endangered species).

Lewis and Clark National Historic Trail Segments

The Missouri and Yellowstone rivers are a portion of the route travelled by the Lewis and Clark Expedition. Approximately 5.01 miles of the Yellowstone and Missouri Rivers cross through BLM ownership in the planning area. No high potential historic sites or physical remnants of the NHT have been recorded on BLM lands in these segments. While the river segments are located along the NHT, when compared to other BLM river segments, regionally, these segments do not have outstanding remarkable values associated with the Lewis and Clark Trail. In contrast, the Upper Missouri Wild and Scenic River contained numerous historic sites that have been substantiated through historical research and were specifically identified in the Comprehensive Management Plan that was developed by the trail administrator (National Park Service) Should additional inventory confirm the presence of historic sites or remains from the Corps of Discovery on BLM lands in the future, a rare value, the BLM would reevaluate such an area for Wild and Scenic River status. While the river segments were not considered eligible for wild and scenic river designation, protections are proposed for the National Historic Trails that would prevent alteration of the physical setting on BLM administered lands (and subsurface).

Fisheries

Of the four river segments with the most potential for outstanding remarkable values, two segments on the Missouri River and one segment on the Yellowstone River have the possibility of containing pallid sturgeon populations. In evaluating the Missouri and Yellowstone River segments, the team considered the presence, or lack of presence, of unique habitat or fisheries associated with the three segments that would warrant a designation of outstandingly remarkable.. None of the three segments were found to contain suitable spawning or rearing habitat (due to dams restricting spawning and larvae migrations) (AFS website 2015) or other characteristics that would help BLM maintain or increase the population. When compared to other segments of the Missouri and Yellowstone Rivers, these segments do not contain outstanding remarkable fishery values. In contrast, the Upper Missouri Wild and Scenic River identified spawning and rearing habitat for one of the six remaining paddlefish populations in the United States. The 149-mile segment also supports the blue sucker, shovel nose sturgeon, sicklefin, sturgeon chub, and the endangered pallid sturgeon. While the fishery values on the BLM administered segments in the planning area were not considered outstandingly remarkable, protections are proposed for the National Trails, riparian, wetlands and fish habitats would prevent alteration of fish habitat.

CONCLUSION

No rivers or streams were found eligible in the planning area, due to lack of outstanding remarkable values (ORVs). The four river segments that were evaluated on the Yellowstone and Missouri River were determined to lack significant historical or fishery resources on public lands/waters along the segments. Due to the absence of historical sites associated with the NHT or important habitat for the pallid sturgeon, no outstanding remarkable values were identified. Therefore,, none of the evaluated segments were found to meet the eligibility criteria of containing one or more outstandingly remarkable value.

Since none of the rivers or streams evaluated were determined to be eligible, it was not necessary to proceed with the classification or suitability determinations.

However, it should be noted that although the segments do not merit eligibility as wild and scenic rivers, the Missouri and Yellowstone river corridors have many current and proposed protections for fisheries and NHTs, in general. For example, a ½ mile No Surface Occupancy is proposed for oil and gas leasing along the Lewis and Clark Trail corridor. Proposed surface-disturbing activities in the corridors would only be allowed when the proposed activity would meet the goals and objectives for managing 100-year floodplains, National Historic Trails, riparian areas, wetlands and pallid sturgeon habitat (see Chapter 2, Table 2-5).

TABLE 2.
RIVER SEGMENTS ELIGIBLE FOR DESIGNATION AS WILD AND SCENIC RIVERS

River/Stream Name	Location County(s)	No. of BLM Segments Along River/ Stream	Total Segment Miles	Free Flowing	Values Present
Bear Creek	Powder River	1	1.68	Yes	No remarkable values.
Big Dry Creek	Garfield	1	1.97	Yes	Scenic downstream from junction with Frazier Creek. Geologic and paleontologic values along the same reach due to cutting from Fort Union to Pierre shale. Neither outstandingly remarkable.
Big Porcupine Creek	Garfield/ Rosebud	1	1.12	Yes	No remarkable values.
Buffalo Creek	Carter	3	4.21	Yes	No remarkable values.
Cabin Creek	Fallon/Prairie/Dawson	3	4.37	Yes	No remarkable values.
Calf Creek	Garfield	1	1.33	Yes	Geologic and scenic values but not outstandingly remarkable.
Cedar Creek (1)[1]	Prairie	8	11.66	Yes	Many geologic and scenic values but not outstandingly remarkable.
Cedar Creek (2)[1]	Wibaux/ Prairie/ Dawson	2	16.85	Yes	Some geologic, paleontologic, and scenic values but not outstandingly remarkable.
Cherry Creek	Prairie	8	17.88	Yes	Geologic and scenic values but not outstandingly remarkable.
Corral Creek	Carter	1	5.70	Yes	No remarkable values.
Cottonwood Creek (2)	Carter	2	4.22	Yes	No remarkable values.
Crow Creek	Carter/ Powder River	2	3.64	Yes	No remarkable values.
Custer Creek	Prairie/Custer	1	4.21	Yes	Geologic and scenic values but not outstandingly remarkable.
East Fork Cedar Creek	Prairie	1	1.36	Yes	No remarkable values.
Grimes Creek	Custer	1	1.56	Yes	No remarkable values.
Hell Creek	Garfield	1	5.00	Yes	Scenic with geologic and paleontologic values due to cutting from Fort Union to Pierre shale but not outstandingly remarkable.
Lame Jones Creek	Fallon/ Prairie/ Dawson	1	1.02	Yes	No remarkable values.
Lisk Creek	Prairie/ McCone	2	4.45	Yes	No remarkable values.
Locate Creek	Custer	2	2.87	Yes	No remarkable values.
McGinnis Creek	Garfield/ Rosebud	2	2.61	Yes	No remarkable values.
Missouri River	McCone/ Richland	2	2.96	Yes	Potential historic value due to its association with Lewis and Clark and the Corps of Discovery. It is also widely used for recreational boating and fishing. Some intact cottonwood gallery; however, it is

TABLE 2.
RIVER SEGMENTS ELIGIBLE FOR DESIGNATION AS WILD AND SCENIC RIVERS

River/Stream Name	Location County(s)	No. of BLM Segments Along River/ Stream	Total Segment Miles	Free Flowing	Values Present
					somewhat decadent with poor age class distribution due to flood control. Potential for unique fish habitat due to presence of pallid sturgeon from the Fort Peck Reservoir dam downstream to the state line with North Dakota. Values are present within BLM segments but not outstandingly remarkable.
North Cottonwood Creek	Carter	1	1.64	Yes	No remarkable values.
O'Fallon Creek	Carter/ Fallon/ Custer/ Prairie	6	8.46	Yes	No remarkable values.
Owl Creek	Carter	3	8.20	Yes	No remarkable values.
Pennel Creek	Fallon/ Custer	5	6.40	Yes	No remarkable values.
Phillips Creek	Garfield	1	1.07	Yes	No remarkable values.
Pine Creek	Fallon	3	4.98	Yes	No remarkable values.
Powder River	Powder River/Custer/ Prairie	3	5.79	Yes	Scenic along the reach within the Powder River Breaks, from the state line to Broadus but not outstandingly remarkable.
Redwater River	Prairie/ McCone/ Dawson	1	1.17	Yes	No remarkable values.
Seven Blackfoot Creek	Garfield	2	9.67	Yes	Scenic with geologic and paleontologic values due to cutting from Fort Union to Pierre shale but not outstandingly remarkable.
Sheep Creek (2)	Custer	2	3.07	Yes	No remarkable values.
South Cottonwood Creek	Carter	1	3.04	Yes	No remarkable values.
South Fork Tusler Creek	Prairie/ McCone	1	1.00	Yes	No remarkable values.
Spring Creek	Carter	1	1.58	Yes	No remarkable values.
Squaw Creek	Garfield	2	2.83	Yes	Scenic with geologic and paleontologic interest due to cutting from Fort Union to Pierre shale but not outstandingly remarkable.
Stellar Creek	Rosebud	1	2.89	Yes	No remarkable values.
Taylor Creek	Garfield	1	1.19	Yes	No remarkable values.
Timber Creek	Prairie/ McCone	2	4.50	Yes	Geologic and paleontologic values due to cutting from Fort Union to Pierre shale but not outstandingly remarkable.
West Fork Horse Creek	Rosebud	1	1.45	Yes	No remarkable values.

TABLE 2.
RIVER SEGMENTS ELIGIBLE FOR DESIGNATION AS WILD AND SCENIC RIVERS

River/Stream Name	Location County(s)	No. of BLM Segments Along River/ Stream	Total Segment Miles	Free Flowing	Values Present
Whitney Creek	Custer/ Prairie	6	8.32	Yes	No remarkable values.
Woody Creek	Garfield	1	2.17	Yes	No remarkable values.
Yellowstone River	Treasure/ Rosebud/ Custer/ Prairie/ Dawson/ Richland	2	2.05	Yes	Potential historic value due to its association with Lewis and Clark and the Corps of Discovery. It is also widely used for recreational boating and fishing. Scenic downstream of Glendive with intact cottonwood gallery. Unique fish habitat and population due to presence of pallid sturgeon from the mouth of the Tongue River downstream to the state line with North Dakota. Values present within BLM segments but not outstandingly remarkable.

[1] **Different rivers/streams that share the same name.**

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